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Title:Coherent control of a THz intersubband polarization in a voltage controlled single quantum well
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Abstract:Ultrashort terahertz pulses in the far-infrared spectral region centered around 2 THz are used to coherently control an intersubband polarization in a GaAs/AlGaAs quantum well structure at low temperature. While the first pulse excites a macroscopic polarization, a second temporally delayed pulse switches the polarization off or refreshes it depending on the relative time delay. The switching is directly demonstrated in the time-domain for the few picosecond long free-induction decay of the induced polarization. Model calculations based on the optical Bloch equations agree well with the experimental data.
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